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The initial phase is to seek the syntactic patterns most commonly used in the subjects' verbal communication. These common patterns are referred to as structural vocabulary. Once learned, these words provide syntactic support to aid the student in the recognition of other words within sentence order.

Adults need immediate practical confirmation of their progress, and evidence of useful "payoff" in their learning efforts. Therefore, the initial approach stresses reading of meaningful language units. From the presentation of many examples of sight-sound correspondences, the student is able to connect the cues with new words. Additional words are added to the nouns introduced, such as "the" and "is" and various adjectives. The sentences are rearranged into questions to wean the student gradually from dependence on the picture. The pictures are then used as general cues to the material being read.

Developmental testing has shown that action verbs in addition to state-of-being verbs connected with interesting pictures, are needed to maintain student interest and motivation. The present version does not introduce writing skills, but later units are planned that will introduce writing in conjunction with number skills.

In order to present the programmed material, a system was developed which utilizes a literate but untrained helper who reads directions and gives auditory clues. As the program progresses, the need for the helper decreases.

Supplementary materials, such as a story book using the vocabulary developed in the first 12 lessons, are used to review the basic material.

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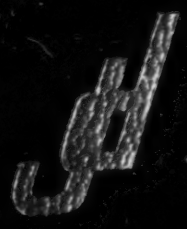

JOHN DIEBOLD & ASSOCIATES

An Analysis of The Diebold Programed Instruction Course To Train Illiterate Adults

Prepared by
The Diebold Group, Inc.

I. INTRODUCTION

The basic method for the teaching of reading in this program is derived from recent studies in the field of structural linguistics. In this method, language is analyzed according to commonly occurring syntactic patterns. We know, for instance, that the skeleton grammatical structure:

determiner - noun - verb - prepositional phrase

is a common syntactic pattern that can yield many sentences dealing with a variety of subject matters. For example, the following sentences are all based upon this construction:

The man is in the room.

The carburetor is under the oil filter.

The bank is near the health clinic.

Every man registers at this court house.

Just as these basic structures can be analyzed for relative frequency in all written materials, so the frequency of individual vocabulary words, within each sentence structure, can be measured precisely. In this way, certain words (determiners, conjunctions, prepositions and pronouns) can be identified as common to all subject matter. These common elements, which can be referred to as a structural vocabulary, receive initial emphasis in our program. One of the early objectives of the program is to introduce and provide practice for these words until a level of sight recognition is achieved. Once learned, these words provide the syntactic support to aid the student in the recognition of non-structural words (nouns and modifiers) within sentence context.

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The initial approach stresses reading of meaningful language units. Adults need immediate practical confirmation of their progress and evidence of useful "payoff" for their learning efforts. They are quick to lose interest and motivation when methods are used that delay this experience. One such approach is the synthetic phonetic method, teaching the sounds of phonetic elements and then combining them into the reading of whole words. While phonetic skills are an important reading tool, our approach to phonics is to build a sight vocabulary which is then analyzed for common phonetic elements. From the presentation of enough examples of sight-sound correspondences, the student generalizes his own rule for the consistency of this correspondence and is able to apply it to the reading of new words containing these elements. The analytic vs. synthetic argument is similar to the educational dispute of e.g. – rule (going from example to rule) vs. rule – e.g. (stating a rule and then giving examples as illustration). We have found the former to be far more efficient in the preparation of materials for adults. The skills of structural analysis (recognition of words by common grammatical elements -- e.g., adjective suffixes, verb endings, etc.) are taught in a similar fashion.

Pictures play an important role in the beginning of our program. Their use is not just limited to prompting the reading of one word. Rather, they are used as context cues for the reading of phrases and sentences composed of both non-structural words represented by the picture and structural words that have no direct pictorial representation. For instance, in Lesson 2, a picture of a fat man appears and is presented with the words 'the fat man.' In this case, the non-structural words 'fat' and 'man' are represented by the picture; the

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determiner 'the' is part of the student's sight vocabulary. The student also learns that the phrase 'the man' is an equally valid caption for the picture. In Lesson 3, the structural word 'is' is introduced and another applicable sentence is formed: 'the man is fat.' With the introduction of a question mark, the syntax is rearranged to provide 'is the man fat?' When prepositions are introduced in Lesson 5, the picture of a fat man can be combined with a picture representing another non-structural word, 'table' for example, and the student reads the sentence: 'the fat man is near the table.' After the introduction of pronouns, the student is reading a series of sentences like:

the man is fat.

he is near the table.

the table is round.

in the presence of a picture of a fat man and a round table.

In this way, the student is gradually weaned from dependence on the picture as a direct cue to a word (e.g., picture: man, word: man) to the use of the picture as merely a context cue to the content of the material he is reading. As word analysis skills are developed, pictures can be dropped entirely, though titles may be substituted to provide content clues.

The subject matter content of the present version of the first twelve lessons does not contain as much high interest as it might. Developmental testing, an essential step in program preparation, is not limited just to the assessment of teaching techniques but also applies to student interest and attitudes. Thus, the subject matter content of this version is more generalized; having brought a number of students through this version, we can then probe them for desired

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changes in content. In fact, it is our hope to have the newly literate students, who have completed one version of the program, write stories for inclusion in later versions. As discussed previously, the structure of the program allows changes in content, derived from developmental testing, to be easily incorporated without effecting the teaching sequence.

From our prior testing, we already know that there is one aspect of the present version of the program that might be changed to increase interest. As the program exists now, the only verb form used is state-of-being verbs in the present tense. Action verbs are introduced in the second unit, where they are combined with exercises in structural analysis. This limits the expressive and informative content of sentences in the first unit. By introducing action verbs in the first unit, the content of the beginning lessons can become more interesting.

The present version of the program does not introduce writing skills. Earlier versions of the program attempted to introduce writing concurrently with reading, but these efforts were abandoned because we found that acquiring the needed manual dexterity was particularly laborious, time consuming and frustrating to our students. However, it is our opinion that much of these difficulties arose from the student's desire to emulate exactly the model of writing presented (i.e. a word to copy, or the outline of a word in dotted lines which the student has to fill in). Thus, the skill involved became less writing (in the sense of expressing or communicating information) and more handwriting. This is the wrong emphasis for the adult illiterate. His writing efforts should not be judged by how neat they are, or how similar they are to another person's handwriting,

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but rather by whether they are successful in transmitting information to someone else; in other words, whether his writing can be read by another. This is the sole criterion. The refinements of improving handwriting should be relegated to a secondary role and introduced at a later time. In subsequent revisions of the program, we will attempt to introduce writing and reading simultaneously using this approach. Our preliminary efforts in this direction lead us to believe we will be successful. If we are, the program itself will gain effectiveness for, as many studies have shown, it is far more desirable to combine the teaching of reading with writing.

In conjunction with writing, we also intend to include arithmetic skills as part of the program. Number skills play an important part in an adult's life -- purchasing, saving, work compensation -- all derive from his ability to use numbers. This skill should logically be taught with writing. Writing numbers represents the expression of maximum written meaning with minimum manual effort.

Presenting the teaching of reading through programed instruction in a printed text creates certain difficulties for the beginning student. To overcome these difficulties, we have developed a system which utilizes a literate, but untrained, "helper." The helper is someone from the same community as the learner. He may be a relative, a friend, or an interested volunteer. The only requisite for being a helper is the ability to read simple directions and a desire to help someone who cannot read.

The helper's role is to read instructions to the student and to assess the accuracy of his oral responses. (When writing is introduced, the helper will,

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in the beginning, also assess the accuracy of the student's written responses by being the recipient of the information the student conveys -- if he is able to read what the student has written, the student has written correctly.) The format of the program has been designed so that both the student and helper work from the same text. The screened portion on the top of the page contains the instructions to be read by the helper to the student. The rest of this page contains the visual material -- words and pictures -- that is presented to the student. Though the helper is used extensively in the beginning lessons, as the student acquires familiarity with the program and develops his recognition vocabulary, the reliance on the helper decreases and the program becomes more self-instructional. This process begins in Lesson 12. Here the words that have been previously read out loud to the student by the helper are now read by the student.

The helper's directions to the student will undergo major revisions in the next version of the program. During the past year, most of our testing was conducted with staff members acting as the helpers. This was because we were attempting to achieve success with the student's track of the program before concentrating on the helper's track. During developmental testing, our staff was given considerable leeway in the reading of the directions. For instance, in sequences where the directions remain the same for many frames, the student would often understand what he was to do after two or three frames. The staff member would be alert for this and, when it occurred, would fade part or all of the direction, telling the student to go on by himself. In each case, the point where directions were deleted would be noted as reference for future

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revisions. Similarly, if the directions were awkward or not readily understood by the student, the staff member would rephrase the directions until the difficulty was eliminated. These changes were also noted and will contribute toward revisions.

The revisions in the helper's directions will be incorporated before the program is tested extensively with actual helpers. However, we still expect this testing to yield further needed changes.

We also expect to alter the artwork in this version. Though the drawings are clear and appealing, we have found they are somewhat static. The use of a less controlled line expressing more gestures, representing the characters in different positions and showing more actions in the drawings all will serve to heighten the student's interest in the program.

In addition to the programed lessons, we are also attempting to develop supplementary activities for the student. The essential objectives of supplementary materials are to provide the student with review exercises that will develop his retention between lessons and to gradually bridge the gap between the controlled material of the program and the wide world of printed material the student encounters in his every day life.

In conjunction with the early lessons, we have developed exercises that are modelled after "picture dictionaries." Here, the student affixes labels containing words and sentences under the appropriate picture. After Lesson 12, we have written a story book containing three stories utilizing the reading vocabulary developed during the first unit. These stories represent the first departure from the controlled setting of the lessons, for, though all the words have been

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previously read by the student in the lessons, in some cases the syntactic relationships between words are new. Future supplementary reading material will introduce other new elements such as different word usages, different sentence constructions, new format and typography and, when phonetic and structural analytic skills have been developed, new words.

The present format was used for developmental testing with a small sample of students. We are currently experimenting with different formats that will provide optimum efficiency and greater economy. Some areas for investigation include the use of non-expendable programs with expendable answer booklets, the use of more than one frame per page, and, of course, various printing processes that will reduce the per unit cost both for developmental versions and for final large-scale production.

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II. LESSON ANALYSIS

Lesson 1

Frames	Description
1- 4	Introduction of the four nouns: 'man,' 'woman,' 'cat,' 'dog.' The directions on both the frame and confirmation pages are longer than necessary.
5-14	This sequence teaches word recognition through configuration. Though nouns are used here, it is only to serve as an introduction to configuration training. In subsequent lessons, configuration as a word recognition skill is only used with structural words; that is, words which cannot be represented directly by pictures. After the beginning of phonetic analysis in Lesson 5, configuration training is, with a few exceptions, dropped. At the end of this sequence, the student is required to read the word isolated on the page. Throughout the program, this will be one of the most difficult skills. A word appearing in isolation is harder to read than when it appears with a picture, or in sentence context. As noted above, configuration is only used in conjunction with structural words. These are the words that are brought to recognition level first and serve as syntactic prompts to the reading of other words in a sentence. The student practices reading them in

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Frames	Description
5-14 cont'd	isolation so that he can recognize them when they appear in a sentence. Again, the directions are wordier than necessary
15-44	Same sequence repeated for other words.
45-50	Discrimination sequence for 'man' and 'woman.' This sequenc appears often in the first unit. Its structure is: 1. picture word (student marks word) 2. word picture contrast picture (student finds right picture) 3. picture word contrast word (student finds right word) There is a total of six frames to this sequence for the two word
51-52	Configuration discrimination
53-58	Association of visual representation with oral. Visual discrim-ination training. Ends with reading of isolated word.
59-64	Discrimination sequence for 'cat' and 'dog.'

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Frames	Description
65-66	Configuration discrimination
67-72	Visual and oral association. Visual discrimination training.

Lesson 2

1-17	These frames introduce five more nouns: 'table,' 'door,' 'room,' 'house,' 'bed.' The same discrimination sequence used in Lesson 1 is used here but, as these are non-structural words, configuration training is not included.
18-35	Introduction of the determiner 'the.' The student responses are aided by the oral cue from the helper. Here is the first pairing of structural and non-structural words. The word 'the' is paired with all the nouns previously introduced.
36-43	Configuration training for 'the' and isolation of the word.
44-50	Here the two word phrase is read without cues from the helper. The non-structural word is cued by the picture, the structural word read as part of the student's recognition vocabulary.
51-54	Preparation for the introduction of the new word 'and.'
55-58	Introduction of the conjunction 'and.' Note the change in picture relationship. These frames illustrate a method for the intro-

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Frames	Description
55-58 cont'd	duction of new words that is used throughout the unit. The new word is added to a familiar phrase or sentence unit. All the other words are known; the new word is cued by helper's directions.
59-66	Configuration training for 'and.'
67-76	Reading of phrases with new word 'and' without oral cues from helper. Again, the structural word 'and' is combined with all the non-structural words introduced so far.
77-124	This sequence begins the introduction of adjectives. The method for introducing new words is the same as described above. In addition, the adjectives are presented in opposite pairs. That is, one adjective is followed by what we presume to be its natural antonym. In testing we have sometimes found our assumptions to be wrong. The natural antonym of a given adjective may be different to the student than the one given in the program. One student, for instance, found the natural opposite of the word 'open' to be 'shut,' not 'closed' as we had expected. Another source of difficulty are the pictures that serve as prompts for words and phrases. Sometimes the student will not interpret the picture as we expect. This does not happen too often with nouns; if it does it will usually be because of intra-

Frames	Description
77-124 cont'd	cultural usage (e.g., In Mississippi we presented a picture of a frying pan as a prompt for the word 'pan;' the student, however, called the depicted object a "skillet"). With adjectives, this type of error is more likely to occur. The pictures try to endow each person or object (noun) with a characteristic (adjective). These characteristics may not be noticed, or may be misinterpreted, or other attributes may be noted that, to the student, are more important. One student called the 'thin man' "'flicted," because she thought that he was a cripple, noting the position of his arm. Other students found it difficult to distinguish between the 'thin girl' and the 'young woman.' These errors indicate a need for revisions in both vocabulary selection and the drawings.
	Within this section are three sequences of frames (92-94, 111-113, 122-124) that serve another function. These frames call the student's attention back to the noun vocabulary by contrasting nouns in phrases and nouns as single words. These frames also force attention to individual words by showing that more than just one word or phrase can be "right" for a particular picture. We inserted these frames after earlier testing had shown that the students tended to repeat the sentence construction most recently learned no matter what construction

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Frames	Description
77-124 cont'd	actually appeared with the picture cue. We call this sequence "syntactic breakdown" because it begins with the largest syntactic unit taught and works back to the individual word.

Lesson 3

1-12	Standard introduction for new nouns. Words are: 'dress,' 'shirt,' 'tie,' 'hat.'
13-18	These are review frames from Lesson 2. They also create the syntactic setting for the introduction of the new word 'is.' The structure of the three word phrase: 'the big dog' (determiner - adjective - noun) should be familiar to the student by the end of this sequence.
19-28	These frames begin the introduction of 'is.' All the words except 'is' are familiar to the student. Recognition of the words, and not mere remembrance of the sentence construction, is important here for the sentence structure has been changed from the first 18 frames to: 'the dog is big' (determiner - noun - verb - adjective)

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Frames	Description
19-28 cont'd	The student must recognize the words in the unfamiliar structure and find the new word. The other nouns and adjectives from Lessons 1 and 2 are reviewed in this sequence while both the new word and the new sentence structure are being practiced.
29-36	Configuration training for structural word 'is.' Leads to reading of word isolated on page.
37-46	Continues practice for 'is.' Sentence structure remains the same. Underlining response is dropped so that reading is the only student response.
47-56	Other syntactic breakdown frames.
57-110	Introduction of more adjective opposites. Structure of sequence is the same as used in Lesson 2 except here the new adjectives are being learned as part of whole sentences rather than phrases.

Lesson 4

1- 4	In this lesson the student will learn to read a question out loud, select a right answer and read it out loud. In the first four frames, the helper asks the questions while the student reads as an answer sentences that were introduced in Lesson 3.

Frames	Description
5- 8	Same as frames 1-4 except here the student is first selecting the correct answer.
9-12	Here the question is read for the first time by the student. All the words are familiar to him, just the syntax is new. Yet he has heard a question asked by the helper in the previous eight frames. In addition, he is familiar with the construction of a spoken question as he uses it often in his day-to-day conversation. The helper's directions tell him that these words ask a question.
13-22	This is the first introduction of punctuation into the program. The symbols are the question mark and period, identifying questions and answers -- not sentences -- respectively. Questions and answers are a familiar part of the student's speech patterns; they are associated with specific inflections and certain word orders. Thus, the punctuation symbols act as cues to the proper reading of a phrase. Other punctuation -- or a more complete definition of sentences -- are not introduced here because they have no practical value for the student at this stage of his development.

Frames	Description
23-48	The student is now asked to read the question and then respond by selecting the correct answer. These frames, beside practicing the question and answer format, review all the nouns and adjectives introduced in the first three lessons.
49-52	This sequence is almost identical with the opening sequence of the lesson. The student response is the same but the helper is now asking a more complex questions by adding the new word 'or:' 'is the man fat or thin?'
53-56	As in the sequence that began on frame 5, the student listens to the question then selects and reads the correct answer.
57-60	Here the student is reading the question in the form asked by the helper in the previous eight frames, as well as the new word 'or.' This question form represents a more difficult step because, for the first time, a non-structural word previously cued by a picture has no direct pictorial support. In frame 57 the word 'thin' is not directly cued by the picture. The main prompt must come from association with its adjective opposite 'fat' and the connecting link supplied by the word 'or.'
61-86	Again, the student reads the question, selects and reads the correct answer.

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Frames	Description
87-104	These frames begin the teaching of finer word analysis skills than have been introduced so far. Previously, the sole word recognition skill taught was configuration. Now we want the student to not only discriminate between the shapes of words but also between the letters inside the shapes. The final frames in this sequence call for the recognition of 'is' and 'or' -- both with the same configuration -- without a familiar phrase or supporting picture.
105-124	Once the student learns that words "are made of letters," he must know that different words can have some of the same letters. These frames call for recognition of the initial consonant 'b' in the words 'big' and 'bed.' Words are now beginning to be taken out of syntactic and context groupings and grouped together on the basis of common phonetic elements, e.g., initial consonants, blends diagraphs and rhyme endings. This is the beginning of phonetic analysis -- the first introduction to the generalization "letters that look alike, sound alike."

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Lesson 5

Frames	Description
6-17 (Lesson begins with frame 6 due to error in numbering; this is actually the first frame of the lesson)	Standard sequence for new nouns. Words follow contextual grouping; in this lesson they are the names of foods -- 'corn,' 'milk,' 'bread,' 'ham.'
18-25	New determiner 'this' introduced with same sequence for introducing 'the' in Lesson 2. The introduction of a second determiner represents a higher reading skill. Prior to this lesson, the basic structure of the sentences to be read was:

Structure	Determiner	Noun	Verb	Modifier
Example	the	table bed dog man woman dress house etc.	is	round soft big fat sad white old etc.

The reading of the structural words 'the' and 'is' was aided by their syntactic functions; the non-structural words -- the nouns and modifiers -- were read in context with picture support. With the introduction of other structural words with the same syntactic functions, dependence upon word recognition is increased. In most sentences 'the' and

Frames	Description
81-25 cont'd	'this' can be read interchangeably. Reading one and not the other means the student is discriminating between two similar words with virtually the same syntactic functions without the aid of a picture.
26-33	Continues introduction of 'this' in sentence context with reading as the sole response.
34-49	This sequence forces attention to the common phonetic element in the two words 'this' and 'the' -- the initial diagraph 'th.' First the student reads sentences containing both words, then the diagraph is isolated just as the initial consonant 'b' was isolated in the 'big' -- 'bed' sequence in Lesson 4.
50-57	Another determiner, 'a,' is introduced with the same sequence used to introduce 'the' and 'this.'
58-71	Continued practice for 'a.' Reading is the only response.
72-79	Configuration training for 'a.' 'the' and 'this' were not taught through configuration because they were practiced as an example of phonetic analysis (diagraph 'th'). Throughout this unit, phonetic analysis will replace configuration training for structural words where the word can be placed in a phonetic grouping. The word 'a' does not represent a phonetic element we wish to teach at this time (the sequence for the introduction

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Frames	Description
72-79 cont'd	of phonetic elements begins with those elements whose sound is constant), so configuration is used as a method of word recognition.
80-87	Introduction of verb 'are.' Now there are two verb forms, 'is' and 'are.' Theoretically, discriminating between the two should not be as difficult as between 'this' and 'the' because each verb form has a discrete syntactic function relating to the number of the noun. In testing, however, we found that the students had difficulty with 'are' in sentences. The difficulty arose because many students did not observe grammatical conventions in their own speech patterns ("The man and the woman is thin."). In this case, syntax could not be a useful prompt until the students practiced correct grammar. Since this is not one of our objectives in the beginning of the program, we may decide to postpone the introduction of 'are' in subsequent versions.
88-95	The student no longer underlines new word 'are.'
96-107	Configuration as a word recognition skill is taught for 'are' as the word is not used as an example for phonetic analysis.

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Lesson 6

Frames

Description

Introduction: Lesson 6 can be considered to be divided into four parts, each introducing a single preposition. The four prepositions, in the order of their introduction, are:

'under,' 'in,' 'on,' 'neat.'

With the introduction of prepositions, two changes occur. First, prepositions increase the grammatical complexity of the sentences. For the first time, two nouns are contained within a single sentence. The nouns are placed into a logical positional relationship to each other through the use of prepositions (e.g., the man is near the table.)

Second, and more important, they introduce a new stage of picture cue complexity, forcing greater reliance upon word recognition for the reading of these sentences. Until this lesson, all nouns have been cued directly by a picture, even though the supporting phrases and sentences have increased in complexity. Now, with two nouns in the sentences, there are two nouns in the picture. To read each, the student must discriminate between the two. In some instances, he would be able to do so on the basis of logical context. For example, the words accompanying a picture of a cat under a table can

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Frames

Description

logically only read:

'the cat is under the table.'

and not:

'the table is under the cat.'

In frames like these, the student can order the two nouns by their logical relationship to one another and would not necessarily discriminate between the actual words 'table' and 'cat.'

With the use of a different preposition, however, the choice cannot be made through logical relationships. The words accompanying a picture of a cat and a table side by side could read:

'the cat is near the table.'

or

'the table is near the cat.'

A similar problem is posed by the introduction of more than one sentence accompanying a picture (which also occurs in this lesson). For example, with the picture of a cat under a table, there might be two or three sentences to be read that relate both to the cat and the table. The first sentence might read:

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Frames	Description
	'this is a cat.' or, with equal logic, it could read: 'this is a table.' In sentences like these, the student cannot make his choice from the context. Reading the correct noun is dependent upon the ability to discriminate one noun from the other. The concentration upon discrimination between nouns in this lesson is consistent with the general development of the program which stresses gradual withdrawal of pictures as an aid to reading and increasing concentration on the words themselves. In Lesson 5 this occurred with determiners and verbs through similarity of syntactic function; in Lesson 4 with adjectives through the pairing of the adjectives and the use of the word 'or.'
1-3(First Part)	Introduction of word 'under.' The response here is both finding the new word in a phrase in which the other words are familiar, and reading the whole phrase.
4-8	Here the cue for the new word that is read by the helper is dropped, as is the underlining response. The student practices reading the whole phrase containing the new word 'under.'

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Frames	Description
9-11	These frames begin the introduction of more than a single sentence to be read. The cue for these longer units is the phrase read to the student by the helper: "the words tell a story about the picture." (The word 'story' might be inappropriate here for the common notion of what makes a story cannot usually be met by what is expressed in two sentences. In the supplementary exercises for later lessons we have prepared reading materials that are also called stories. In these materials, the term story is more accurate for each progresses from situation to resolution.) Reading more than one sentence at a time sometimes causes initial difficulty. On the other hand, the student receives a sense of accomplishment from this advancement that is more than sufficient compensation for the effort required.
12-19	Configuration training for 'under.'
20-21	Story frames providing additional practice for reading 'under' in context.
22-24 (Second Part)	Introduction of 'in.'
25-29	Prompt from helper and underlining response dropped. Student reads sentence.

Frames	Description
30-33	"Story" frames, requiring the student to read units of two or more sentences.
34-46	The words 'in' and 'is' are paired for initial letter recognition. This sequence continues the process of pairing words according to similar phonetic elements for later training in phonetic analysis. Because the new word 'in' receives attention in this sequence, configuration training for the word is not used.
47-48	Story frames providing additional practice for 'in' and 'is' in context.
49-51 (Third Part)	Introduction of 'on.'
52-54	Student reads whole sentence with new word.
56-60	Story frames.
61-62	Words 'in' and 'on' paired for letter recognition.
73-74	Story frames providing additional practice for 'in' and 'on' in context.

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Frames	Description
75-77 (Fourth Part)	Introduction of 'near.'
78-81	Student reads new word in sentence.
82-85	Story frames.
86-103	Words 'near' and 'new' paired for letter recognition.
104-105	Story frames practicing 'near' and 'new' in context.

Lesson 7

1-8 These frames begin the second question and answer sequence in the first unit. The sequence is the same as that used in Lesson 4, where the question was 'is the man fat?'

In this lesson, the function of question and answer is to review all the prepositions introduced in Lesson 6. The new word in this lesson is 'where' allowing the construction of questions such as 'where is the thin man?', etc. Thus, each answer reviews a preposition (e.g., 'the thin man is in the room.').

The initial frames begin with the helper asking the question containing the new word 'where.' The student reads the words under the picture which answer the helper's question.

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Frames	Description
9-16	Here the student selects between two possible answers. The structure of these sentences are identical, all the words in one sentence, except the preposition, corresponding with the words in the other. Because only the prepositions vary, the correct choice requires the ability to discriminate between prepositions.
17-20	Now the question is dropped from the instructions the helper reads and appears in the student's portion of the frame. The student must find and underline the new word 'where.'
21-52	Full question and answer frames. The student reads the question, finds and reads the correct answer. The student not only reviews prepositions but also practices reading all the previously introduced nouns and adjectives.
53-66	Pairing of words with common phonetic elements. The words 'where' and 'white' are paired for introduction of the diagraph 'wh.'
67-73	Story frames.
74-94	Phonetic pairing. The words 'cat' and 'corn' are isolated for introduction of the initial consonant 'c.' In addition, all other words previously paired for introduction of different initial consonants are reviewed: new-near big-bed

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Frames	Description
95-102	More practice with story frames.
103-125	Phonetic pairing for initial consonant 'd' with words 'dog' and 'door.' Review of other initial consonants.

Frame 120 represents an important step in the over-all phonetic sequence. This frame type presents one word with its first letter underlined. The word is read out loud by the helper as he reads the directions. The student is required to find the other word on the page that begins with the same first letter and read that word out loud.

Finding the word is not difficult for the student -- it is a relatively simple visual discrimination. But reading the word out loud is more difficult, for there is neither picture nor sentence context to prompt his response. The response should come from an association of the two words having the same first sound. This, in turn, prompts the association between the words previously grouped according to the same initial consonant -- in this case 'b.' Prior to this frame, we have used sequence as an aid to the required response. That is, one or two frames before this frame type appears, there has always been another frame where both words were read out loud by the helper in the directions. For example, frame 117, calling for the association of 'corn' with 'cat,'

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Frames	Description
103-125 cont'd	is preceded by frame 115, in which both words are read out loud by the helper as prompts for the student. The reason frame 120 represents a new step is that the immediately preceding sequence does not contain a frame which pairs 'bed' and 'big.' These two words were the first pair of words with a common phonetic element to be introduced. So far they have been reviewed three times. It was expected that this amount of practice would enable the student to make the correct response to this frame without "sequential support." (We use this term to denote any support given to the response on a particular frame in the frames immediately preceding it; in this case it would be the presence of frames stressing the sight-sound association between the two words in the sequence leading up to this frame. "Sequential prompting" is, in the technology of programed instruction, considered a programing fault commonly made by beginning programers. However, it is only a fault when it appears inadvertently. When used consciously it can become a useful programing tool. As with other prompts, it must be faded before terminal behavior is achieved. Thus, though frames exactly similar to frame 120 of Lesson 7 appear earlier in the program, they are not considered "terminal frames" because they receive support from preceding frames of the sequence. One of our criteria through-

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Frames	Description
103-125 cont'd	out the program is that terminal behavior for a particular skill is not achieved until a terminal frame is presented out of sequence. Thus, as in the case above, it is not uncommon to have terminal frames appear more than once.)

Lesson 8

Introduction: With the establishment of the question and answer format introduced in Lesson 4, a pattern for introduction and review has been established that is continued throughout the first Unit. In Lesson 4, the question and answer format is used to review the adjectives introduced in Lessons 2 and 3. In Lesson 7, the same format is used to review the preposition introduced in Lesson 6. Beginning with this lesson, four consecutive lessons are used to introduce and review pronouns.

We begin with the pronouns: 'he,' 'she,' 'it,' 'they,' which are introduced in this lesson. In Lesson 9, the interrogative pronouns 'who' and 'what' are introduced allowing the pronouns from Lesson 8 to be reviewed in the standard question and answer sequence in which the questions are 'who is this?' and 'what is this?'

Lesson 10 adds to the list of pronouns with the introduction of the possessives 'his' and 'her.' These pronouns are, in turn,

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Frames	Description
	reviewed in Lesson 11 where the new word 'whose' is used to form questions like 'whose house is this?'
1-6	These are review frames establishing a familiar sentence structure into which the pronoun 'he' will be introduced.
7-12	Same structure but now the pronoun 'he' is substituted for 'the man' in the second sentence.
13-35	Phonetic pairing of 'he' and 'hat' for introduction of the initial consonant 'h.' Word pairs containing other identical initial consonants previously introduced are reviewed. Again, as in frame 120 of Lesson 7, some initial consonant pairs are tested without sequential support. The word associations tested are: big – bed new – near
36-41	Review frames establishing a familiar sentence structure for introduction of pronoun 'she.'
42-47	Same structure with substitution of pronoun.
48-60	Phonetic pairing of 'she' and 'shirt' for introduction of diagraph 'sh.'
61-66	Review frames establishing familiar sentence structure for pronoun 'it.'

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Frames	Description
67-72	New word 'it' is introduced as substitute for noun phrase in second sentence.
73-91	Phonetic pairing of 'it' with 'in' and 'is' for additional practice with initial vowel 'i.' 'is' and 'in' were paired in Lesson 6.
92-93	Story frames for general review with all words back into sentence context.
94-99	Review frames to set familiar structure for introduction of pronoun 'they.'
100-105	Introduction of 'they' into the same structure.
106-124	Phonetic pairing of 'they' with 'this' and 'the' for additional practice with diagraph 'th.' 'this' and 'the' were paired in Lesson 5.
125-126	Story frames for general review.

Lesson 9

Introduction: This lesson reviews, through the standard question and answer sequence, the pronouns introduced in Lesson 8. Because of the antecedent requirements necessary for pronouns, the question and answer sequence is altered

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Frames | Description

somewhat from that used in earlier lessons. A double question is used extending over two successive frames. The first question contains the new word 'who,' introducing the subject of the pronoun:

First Frame

who is this?

(pict: thin man in roon)

this is the thin man.

The second, using the word 'where' -- previously introduced -- actually reviews the pronoun:

Second Frame

where is he?

(pict: same as in first frame)

he is in the room.

In this manner, the new word 'who,' when combined with 'where,' serves to review 'he,' 'she' and 'they' in a double question format.

The new word 'what' is introduced later in the lesson to review the impersonal pronoun 'it' through the same double question format:

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Frames	Description
	First Frame
	what is this?
	(pict: table in room)
	this is a table.
	Second Frame
	where is it?
	(pict: same as in first frame)
	it is in the room.
1-12	The standard method for beginning the question and answer sequence -- the helper first reads the question out loud. The sequence is altered so both questions are read in succession.
13-24	The helper still asks the question. Now the student selects and reads the correct answer.
25-29	The question containing the new word 'who' is read by the student for the first time; the helper provides the oral prompt.
30-37	Configuration training for 'who.' This word is not phonetically paired with 'where' and 'white' because there is a slight but distinct difference between the prounciation of the diagraph 'wh' in 'who' and the way it is sounded in the other two words.

Frames	Description
38-49	Student reads both questions in succession, choosing and reading the correct answer for each. Pronouns 'he,' 'she' and 'they' are reviewed.
50-61	Begins section for introduction of 'what' for use in double question format for review of impersonal pronoun 'it.' Same structure as frames 1-12 of this lesson.
62-73	Helper still asks questions; student selects and reads correct answer.
74-79	Introduction of new word 'what.' Continuation of double question format.
80-100	Phonetic association for 'what,' 'where' and 'white' for review of initial diagraph 'wh.'
101-112	Student reads both questions in succession, choosing and reading the correct answer for each. Pronoun 'it' is reviewed.

Lesson 10

Introduction: This lesson continues the introduction of pronouns. Two more are added: the possessive pronouns 'his' and 'her.'

The lesson consists of two general teaching sequences. The first teaches

's

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Frames | Description

as the appropriate case ending for the possessive. The second part introduces the new pronouns.

Through the introduction of the possessive case, this lesson also contributes to the development of the characters who appear in this and earlier lessons. The 'thin man,' for example, is shown to be the owner of the 'old house' and the 'big dog,' the 'man' is seen to own the 'new house,' and so on. In this way we begin to develop information about the characters who will appear in stories in later lessons.

In testing this lesson, we noticed confusion during the introduction of possessive endings. The students tended to pronounce the terminal 's' sound in words where it did not appear. This error is understandable after a sequence in which all the key words end in the same sound: 'man' becomes 'man's,' 'woman' becomes 'woman's,' etc., and even the new word 'his' ends with the sound associated with the possessive.

In addition, several frames in the beginning sequence were unnecessarily complex and presented unaccustomed difficulties for the student. In revising the program it may be more desirable to postpone the introduction of possessives until plurals and plural verb endings are also introduced thus providing a discriminative context.

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Frames	Description
1-3	The student reads successive review sentences that juxtapose the man and the new house.
4	The student selects the picture representing ownership. The artwork here is poor and definitely needs revision. Particularly confusing is the depiction of the front of the house that makes one section look like the capital letter 'H.'
5	Introduction of 's.
6-7	Discrimination of mark and letter combination which comprise the possessive sign.
8	Same as frame 6 but with generalization about the possessive sign read to student by helper. A poor frame because it does not actively require the student to respond to this new information.
9-16	Same as first sequence (1-8) with different possessive relationship (thin man - big dog).
17-21	Again, same as first sequence but with different possessive relationship (woman - black cat) and without the discrimination frames for the possessive sign.
22-26	Same frames, different possessive relationship (young woman - white dress).

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Frames	Description
27-29	Here the sequence is further shortened by eliminating the two review frames and beginning with the frame juxtaposing the two parts of the possessive relationship (old man - black hat).
30-32	Same as 27-29 with different possessive relationship (old woman - white hat).
33-38	Here the possessive is shown without relation to ownership by a specific character but rather to a generic class (a man's hat rather than the man's hat). This sequence enables us to reduce the picture prompt to the characteristics of a single object. Thus, the words: this is a man's hat. are cued only by a picture of a hat, rather than by a picture of a man holding or wearing a hat.
39-43	This sequence introduces the new pronoun 'his' using the relationship of 'man' to 'new house' previously used to teach the possessive sign.
44-48	Same as 39-43 for 'thin man' and 'big dog.'
54-82	Phonetic association for 'his,' 'he' and 'hat.' Other initial consonant associations are reviewed. Some associations are

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Frames	Description
54-82 cont'd	tested without sequential support. These occur in frames 72 and 74. The associations tested are: corn - cat new - near
83-87	Introduction of new pronoun 'her' using same sequence as that used for 'his' (39-43). Possessive relationship is between 'woman' and 'black cat.'
88-92	Same as 83-87 for 'young woman' and 'white dress.'
93-97	Same for 'old woman' and 'white hat.'
98-130	Phonetic association for 'her,' 'his,' 'hat' and 'he.' Other associations tested without sequential support occur in frames 119 and 120: cat - corn door - dog

Lesson 11

Introduction: This lesson begins with the introduction of the last possessive pronoun for this unit, the word 'their.' Then, the possessive case (and all the possessive relationships between characters and objects) are reviewed in the standard question and answer sequence.

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Frames	Description
	The question again contains one new word, the interrogative pronoun 'whose,' allowing questions like: whose house is this? Finally, the lesson introduces two new words in noun form -- 'question' and 'answer' — as necessary vocabulary for the introduction of self-instructional directions that occurs in the next lesson (Lesson 12).
1-4	These frames are the standard sequence for the introduction of the new word 'their.' The sequence is repeated several times in the beginning of the lesson. The first frame is a review frame establishing the plural subject which will set the syntactic context for the introduction of the plural possessive pronoun. Frames 2 and 3 review the singular possessive pronouns ('his' and 'her') in the same character-object relationship that will be used to introduce 'their.' Frame 4 repeats the context and plural subject of frame 1, and adds another sentence containing the new word 'their.'
5-8	Same as 1-4 with different possessive relationship (old man and old woman - square table).
9-12	Same as 1-4 with different possessive relationship (fat man and fat woman - little dog).

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Frames	Description
13-16	Same as 1-4 with different possessive relationship (thin man and thin woman - old house).
17-20	Same as 1-4 with different possessive relationship (happy man and happy woman - new house).
21-42	Phonetic association for 'the,' 'this,' 'they' and 'their.'
43-46	Beginning of question and answer sequence. Helper asks question containing new word 'whose.'
47-50	Same as 43-46 with student selecting right answer.
51-54	Question containing new word 'whose' is now read by student.
55-68	Full question and answer frames reviewing all possessive pronouns and character-object relationships.
69-81	Phonetic association for 'who' and 'whose.'
82-90	Story frames using possessive pronouns.
91-100	Introduction of new nouns 'question' and 'answer.' The punctuation symbols for each is used as picture cues.

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Lesson 12

Frames

Description

Introduction: This lesson introduces self-instructional directions. With these directions, and others introduced in subsequent lessons, the student will be able to complete major portions of the program without the assistance of a helper.

Silent reading is also introduced in this lesson in conjunction with the self-instructional directions. The imperative nature of directional statements make them a logical beginning point for silent reading. Up to this point, the helper, reading instructions to the student in order to communicate the information the instructions contain, reads them out loud. The student, reading other portions of the frame so that the helper can confirm the correctness of his reading, also reads out loud. But when the student reads directions, the information they contain does not need to be transmitted to anyone else and thus they do not need to be read out loud.

At first glance it would seem that the introduction of silent reading eliminates an important feature of programed instruction for there is no overt act the student performs for which he can receive confirmation. Prior to this, all the student's reading responses have been overt (oral reading) -- their correctness confirmed by the helper. However, as the content of the material to be read silently contains direction for an action to be performed, the student

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Frames	Description

is still emitting a measurable response. The new element that has been introduced is comprehension. Prior frames requiring the student to read out loud did not test for this skill. When the student satisfactorily completes frames which require him to read a direction silently, he is evidencing reading comprehension. Because he makes an observable response to the material he reads, the student can receive confirmation from the helper. More important, the student can also measure the correctness of his response by checking the confirmation page. When this is done, the frame has become totally self-instructional.

Four new words are taught in this lesson to achieve self-instructional directions -- 'line,' 'draw,' 'read' and 'right.' With these words in the student's recognition vocabulary, the lesson builds to the self-instructional direction:

read the question.

draw a line under the right answer.

1-5 Review questions using the word 'where.' The question contains the antecedent for the word 'it' which the student selects as part of the correct answer (e.g., where is the hat? -- it is under the bed.)

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Frames	Description
6-11	The helper asks a new question: 'where is the line?' This question also contains the antecedent for 'it' in the correct answer (e.g., it is under the hat.) and the responses are the same as in frames 1-5.
12	The question with the new word 'line' is now read out loud by the student. The student finds and underlines the new word.
13-18	Full question and answer frames with the word 'line.' The antecedent for the pronoun in the answer is still in the question.
19-22	The noun phrase replaces the pronoun in the answer and the new word is read in both question and answer.
26-33	Helper's directions are now faded to a minimum in order to begin prompting of new word 'draw.' As the sequence ends, the direction is reduced to two alternating one-line directions: draw a line under the question. draw a line under the answer. These directions, now read by the helper, will become the first to be read by the student.
34-35	The direction with the new word 'draw' is read out loud by the student.

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Frames	Description
36-49	The beginning of self-instructional directions. The directions to be read by the student are enclosed in a box immediately under the helper's portion of the frame. The student is instructed to read these words silently and to do what they say. The drawn box around the student's directions represents a "formal" prompt which will be faded as the student learns to discriminate between the direction and the rest of the frame on the basis of format and the information content of the words themselves.
50-54	The helper again reads directions to the student in order to begin introduction of the new word 'read.' Again, the directions are reduced to a minimum and become two alternating sets of two-line instructions (one of which can already be read by the student): read the question. draw a line under the question. read the answer. draw a line under the answer.
55-56	The direction with the new word 'read' is now read out loud by the student. The student finds the new word and underlines it.
57-68	Second self-instructional series. The student is asked to read the direction to himself, do what it says and continue to go on by himself.

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Frames	Description
69-74	The helper returns to read directions containing another new word: 'right.' The new word is introduced in question form with all the other words already familiar to the student: 'where is the right answer?'
75	The question containing the new word 'right' is read out loud by the student. The student finds the new word and underlines it.
76	The new word 'right' is used in a full question and answer frame.
77-87	Third self-instructional sequence. The student is now reading the directions that accompany a full question and answer frame: read the question. draw a line under the right answer. Questions used as review items in previous parts of the program (is the man fat?, where is the man?, who is this?, etc.) are reviewed again with self-instructional directions.
88-115	The student is instructed to finish the lesson by himself. The self-instructional directions are varied throughout these frames.

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III. FUTURE LESSONS

It is estimated that a revised first unit would represent between one-quarter and one-fifth of a complete literacy course. The remainder of the program will build upon the structure developed in the first unit.

One of the major goals of the later units will be the attainment of the skill of independent reading. Independent reading is the ability to use word analysis skills to read an unfamiliar word encountered for the first time. The successful reader should have a variety of analytic skills which he can bring to bear on an unfamiliar word. There is no one "right" way to attack a word -- phonetic analysis, structural analysis, derivation of meaning from context, recognition of syntactic function and other "code-busting" techniques are all valid, separately or in combination. Successful reading of a given word is more important than the particular technique used to read that word. The function of the program is to provide the student with practice in all the techniques so he has them in his repertoire when he needs them.

Though the program will not stress one particular word analysis skill in preference to another, it must provide discrete exercises for each. Preparation for exercises in phonetic analysis began in Unit I. These will be continued until the student has had sufficient practice recognizing similar phonetic elements in familiar words to make the generalizations necessary to synthesize the known phonetic elements of an unfamiliar word, and to read it correctly.

Structural analysis skills will be developed in the same manner. The student will learn to recognize commonly occurring structural elements in familiar words

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and then will use this skill to read an unfamiliar word consisting of familiar structural elements by synthesizing these elements into the whole.

But the most important part of the program will be the material the student reads while he is practicing his newly-acquired skills. The development of reading materials must keep pace, in complexity and subject matter content, with the student's progress. In other words, the greater proficiency the student acquires, the more valuable the reading experience should become. There will always be an intrinsic reward from the very act of reading; especially considering this is something he has never previously been able to do. But the value, and enjoyment, from reading derives from the new information that is received through this process. The materials read by the illiterate should be designed so that their content maximally fulfills his needs and interests.

The introduction of both the question and answer format and silent reading in Unit I offers a unique approach to the construction of reading materials in subsequent units. The behavioral responses made by the student to this frame type are the same required of a literate person learning any subject matter from a programed lesson. The frames essentially test for comprehension and are the forerunner of standard comprehension exercises that require the student to read a body of material and then select from alternative answers the one that most closely describes the content of that material. By constructing and sequencing such exercises according to programing principles, subject matter content can be taught. In this manner, as the student's recognition vocabulary and word analysis skills increase, the programed format can be used to teach him useful information. Thus, the literacy program becomes, in essence, a

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combination of two programs -- one teaches reading skills, the other a subject matter while those reading skills are being practiced. And the student learns immediately the power and value of being able to read.

The crippling aspect of illiteracy is that it at once condemns the illiterate to the bottom of the socio-economic scale and denies him access to the knowledge that would free him. As the student begins to acquire reading skills, there is a wealth of material that would be of immediate value to him. Vocational training is possibly the most important, but many other topics -- hygiene, citizenship, current events, consumer practices, for example -- also fulfill his knowledge needs.

In addition, not being able to read has shut the illiterate off from a whole world of emotion and excitement that is offered in print. In our program, fiction will play just as important a role as fact in the content of the material he will read.

Developmental testing has yielded information indicating the types of revision that will add to the quality of the program. Possibly the most significant information comes from what we learn about the student -- his interests, learning aptitude and other characteristics -- in conjunction with what we learn about the over-all sequencing of the skills to be taught. We are not satisfied that our latest developmental testing indicates that, as far as it goes, the program "works." We will only know the program is successful when we have established that it teaches satisfactorily with peak effectiveness; that is, with no extra teaching steps or unneccessary student time. Revisions that are directed toward these goals are perhaps the most important of all.

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The key to this type of revision is determining how the program can be condensed without increasing student difficulty. One example of such condensation would be to begin writing simultaneous with reading instead of teaching it later in the program.

Another way we can condense is to reevaluate our vocabulary choices to see if the selected words are serving their maximum function. For instance, the adjective chosen as the vocabulary for Lessons 2 and 3 of the first unit were selected to provide pairs of antonyms. Adjectives, however, also provide important examples for exercises in structural analysis (e.g., recognizing common roots and endings in comparative adjectives) -- a skill not introduced until the second unit. By beginning structural analysis in the first unit, adjectives could be selected which satisfy both demands, thus decreasing the number of words needed for the student's recognition vocabulary.

A further condensation can be applied to self-instructional directions. In the current version of the program, they do not begin until Lesson 12. Yet, with only minor revisions, they could be introduced as early as Lesson 7. This would allow them to receive important practice in the alternating pattern of introduction and review that is the structure of Lessons 8 through 11.

By revisions such as these, as well as those concerned with particular frames, the program evolves into a teaching tool of maximum efficiency.

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